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II. Socioeconomic Demonstration

1. Define the boundaries of the affected community:

The proposed operation is located in the community of Fonde near Middlesboro, in Bell County, Kentucky on Clear Fork of the Cumberland River.

2. The effect on employment in the affected community:

Employment within the community will be directly and indirectly impacted with continued employment, 15 direct and 30 indirect. The 15 jobs continued directly are high quality skilled labor positions with salaries up to $45,000 annualy, the 30 jobs affected indirectly are from menial quality to high quality such as clerks etc. at stores to skilled workers such as equipment maintenance personel with salaries ranging from $19,500 annually to $45,000. Bell County has an unemployment rate that is higher than the state and national averages, the current unemployment rate is 9.2% (http://workforcekentucky.ky.gov). This mining project is expected to continue employing approximately 15 individuals, this will not increase the unemployment rate by 1.7%, there are currently approximately 874 unemployed people in Bell County (15 is 1.7% of 874).

3. The effect on median household income levels in the affected community:

The median income for Bell County is $19,531 annually the 15 directly affected households will earn $45,000 annually. This influx of monies will allow these households the ability to maintain and/or enhance their economic status and provides opportunities for improved social welfare. Therefore the households will be positively impacted. Additionally many of the indirectly affected jobs will be of a technical nature (mechanics, specialized mine product suppliers etc.) so that the 30 indirectly affected households will earn between $19,500 and $45,000 annually. Therefore the households will be positively impacted also.

4. The effect on tax revenues of the affected community:

The industrial and commercial benefits to the community are the continueation of 15 direct and 30 indirect jobs, there will be no decrease in the Bell County tax base, due to Appolo Fuels, Inc. generating approximately $820,000 (based on Appolo Fuels, Inc. historic coal production rates of approximately 400,000 tons of coal per year at a rate of $2.05/per ton 400,000 X 2.05 = $820,000) in yearly coal severance taxes. This money is used for local education, health services, and infrastructure projects. The coal severance tax for Bell county for the year 2006-2008 was $5,264,150 according to www.coaleducation.org, the decrease from that amount for loss of this mine site would be 15.6% (820,000 is 15.6% of 5,264,150).

5. The effect on an existing environmental or public health in affected community:

The area will benefit from this project by the mitigation proposed in conjunction with the state and federal regulations. These benfits will include stream bank stabilization, stream channel rehabilitation and the planting of indigenous species within the riparian zone. This will provide a healthier habitat for aquatic species and other wildlife leading to a well balanced ecostystem. This mine will reclaim approximately 2.2 miles of orphan

highwall on the Rich Mountain coal seam, reducing the potential of hikers, hunters, atv/motorcycle riders, and wildlife in the area falling off of the existing highwall.

Sediment runoff from the existing 19.1 acres of orphan mine bench will be treated by the proposed ponds. The private roads within the project will be upgraded/enhanced and will therefore assure proper water containment. All previous logging disturbance within the watershed will be treated by the proposed sedimentation pond, whether the logging area is within the proposed mine site or outside of the permit area.

6. Discuss any other economic or social benefit to the affected community:

As stated above, with the continued contribution of taxes that the county will receive from the coal severance taxes, public roads, buildings, and other infrastructure will benefit from the continuation of the current jobs. Also the private roads within the project will receive improvements (the existing haul roads will be widened, graded, surfaced, ditched and culverted as appropriate) and will make the land better accessible, post mining the land will be left in a more usable condition by the reclamation of previously orphaned mine land and a post mining land use change to wildlife habitat.

The continuation of 15 jobs will benefit the community by not decreasing the average median income for Bell County from $45,000 annually to $19,500 for the 15 continued jobs. Additionally the continuation of the 30 jobs affected indirectly will not decrease the economic income for Bell County by $19,500 to $45,000 for each of these jobs.

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III. Alternative Analysis

1. Pollution prevention measures:

Because surface mining techniques must be used to maximize the revovery of coal reserves, on site water treament ponds have been considered. The sediment ponds will retain the water for an acceptable amount of time to allow the solids to settle effectively. Silt fences and straw bales can be used in areas where run-off may not flow to a pond, such as road outslopes etc., however silt fences will not be used as primary sediment control or in areas of steep slopes where strong flows could possible sweep them away. The proposed treatment measures for this operation are the construction of 9 on bench treatment ponds.

One alternative pollution treatment measure considered is pumping of the runoff to a wastwater treatment facility. The closest treatment facility is the Pineville Sewage Treatment plant which is located 15 miles away on the Cumberland River. There is currently no sewer Connection to the plant from Clear Fork. The collection of all runoff from the proposed mine site for the pumping to other treatment facilities would necessitate the construction of collection ponds and pumping stations. The construction of these collection ponds would impact the same acreage as the proposed treatment ponds.

The estimate cost of constructing of a pipeline at $22/foot is $1,742,400 (15 miles x 5280 ft/mile = 79,200' 79,200 x $22/foot = $1,742,400). The construction of the needed lift/pumping stations is estimated at $200,000 each with an estimated yearly maintenance cost of $393,792 per station. Due to the high cost for this type of treatment it has been deemed infeasable. Additionally the pumping of this runoff to another facility would negatively impact Clear Fork because of the reduced flow.

Another alternative pollution treatment measure considered is pumping of the runoff into underground injection control wells. The estimated constructin cost for subsurface storage wells is approximately $100,000 per well, with the need of at least three wells the high cost for this type of treatment it has been deemed infeasable. Additionally the pumping of this runoff to underground injection control wells would negatively impact Clear Fork because of the reduced flow.

2. The use of best management practices to minimize impacts:

Prudent care will be exercised to minimize impacts to water quality within the permit area. Construction and in-stream work will be scheduled during low flow or no flow conditions as feasible. Silt control will be established before this area is disturbed. Existing vegetation will be preserved as possible and vegetative cover will be reestablished as soon as possible. All water leaving the permit area will pass through a sediment control structure before exiting the permit area. These structures are engineered to be the most efficient and least invasive and are designed to prevent sediment from entering the stream in significant quantities by allowing ample time for solids to settle to the bottom of the pond. Point source discharge will be specifically identified as to source and location. Surface and ground water monitoring plans have been designed, and will be used to identify any alteration in water quality or quantity. Compliance with the limits established for the outlets in the KPDES permit are designed to prevent adverse impacts to the receiving channels. Temporary sediment control devices, including silt fences, hay bales, ditches and berms will be used to direct flow to

the sediment structures. Stockpiles and/or overburden storage sites will be placed out of drainage patterns. Upon completion of mining, all exposed coal seams and any toxic, combustible or other waste materials will be covered with a minimum of four feet of non-toxic and non-combustible material. This material may be blended or treated to neutralize toxicity in order to prevent pollution, sustain combustion, and/or minimize any adverse affects. An emergency spill response and clean up plan will be maintained to prevent potential release into the waterway.

3. Recycle or reuse of wastewater, waste by-products, or production material and fluids:

The water in the ponds will be recycled and used for dust suppression on the roads and pit areas, and will also be used to fill the hydroseeder during seeding and mulching of the backfilled mine area. The estimated amount of water available for use as dust suppression etc. will be approximately 11,760,023 gallons (volume of water stored in the pond at the principal spillway), of this amount approximately 6,000 to 12,000 gallons per day may be used for dust suppression and reclaimation purposes as needed. Water for dust suppression would be pumped from one of the on bench ponds into a tanker truck fitted with spray nozzles which would release water onto the roadway. The capacity of a water truck is 3,000 gallons and two to four load a day would be needed for dust suppression at a cost of approximately $500 to $1,000 per day, based on $250 per load.

Other water reuse considered would be post mining vegetation irrigation. The estimated cost of installing two (2) Traveling Gun type irrigation systems capable of covering an estimated field size of 80 acres would be from $63,825-$80,403 in capital (165.78 Ac. X $385/Ac.-$485/Ac. = $63,825-$80,403) with an annual maintenance cost of approximately 6% of the initial capital cost or $3,830-$4,824 per year (.06 X $63,825-$80,403 = $3,830-$4,824). The water may not be effectively used for watering the land postmining due to the greater than 6% land slope. With the slope of the land being greater than 6%, the water would not be absorbed quickly enough, possibly causing land slides and soil erosion. Due to the high cost for this type of water reuse it has been deemed infeasable.

4. Application of water conservation methods:

Available and practical water conservation methodology will be employed during the life of this project. The drainage area for this permit amendment area is 750 acres, using a value of 1 cfs per acre the possible peak discharge during a 10 year/24 storm event could be 750 cfs, or 336,000 gallons per minute. Water from sediment control structures can be used for on site dust suppression, hydro seeding and when applicable preparation plant operation.

Dust suppression typically involves using large water trucks to spray haul roads, material stockpiles, and other areas being worked by equipment, approximately 6,000 to 12,000 gallons per day may be used for dust suppression and reclaimation purposes as needed. Water for dust suppression would be pumped from one of the on bench ponds into a tanker truck fitted with spray nozzles which would release water onto the roadway. The capacity of a water truck is 3,000 gallons and two to four load a day would be needed for dust suppression at a cost of approximately $500 to $1,000 per day, based on $250 per load.
During reclamation, hydroseeding is used to evenly distribute seed, fertilizer and mulch without encroaching on minimally compacted areas. Hydroseeding is the process where

seed, fertilizer, mulch, and water are mixed together to form a slurry mixture that is sprayed, under pressure for seeding. The ratio of seed mixture to water varies but an approximate ratio is 1:3. In order to use hydroseeding as an application process, access to a water source has to be within close proximity of the project. Industry reclamation personnel estimate the usage of water resources for hydroseeing application at 3,000 gallons per acre. Water application to hydro seed this permit area would be approximately 495,000 gallons. The estimated cost for spraying of water for hydroseeding is $41,250 based on $250 per load x 165 loads. This represents a one time application of which the majority would occur after resource recovery is completed.

Preparation plants are normally fixed structures whose location may be central to several operations and rail loading facilities. Preparation plants routinely withdraw water for the operation of these facilities. There is no preparation plant at this site. Using water already impounded in the sediment control structures for these purposes conserves water and confines withdrawal to the project location.

Not all the water resulting from this site can be used for these purposes and discharge is still necessary to the mining process and to maintain the stream function.

5. Alternative or enhanced treatment technology:

Alternative treatment options include Limestone Sand Dosing and Limestone Channeling as these treatments are most effective for streams that have low pH, but also relatively low dissolved metal concentrations. Iron and/or aluminum hydroxides precipitate in the stream, but probably over a shorter stretch than without treatment. These procedures and their associated costs are outlined below.

Limestone Sand Dosing is the addition of limestone sand to an acidic stream by dump truck. The limestone would be distributed downstream by periodic flooding. The sand must be replenished approximately 1 or 2 times per year, depending on flooding frequency. The streams would have to have truck access at all times, all ponds may not be truck accessible at all times therefore hindering the effectiveness of this option. The estimated cost of this option is $200,000 per site. This estimate includes $350/ton for limestone and the cost of sand. The cost of purchasing a dump truck is approximately $50,000, not including operation and maintenance costs.

Limestone channeling is the placement of bars constructed by combining limestone gravel and sand. The limestone bars get coated by iron and/or aluminum hydroxides, but some limestone dissolution still occurs. Again the stream would have to be accessible by truck for the placement of the bars therefore hindering the effectiveness of this option.

Both options may impose unsafe conditions, and notwithstanding the fact that results on pH, alkalinity and other water components are dependant on the limestone action and is therefore inaccurate or unreliable.

Neither of the above treatment methods are proposed to be utilized on this site. The proposed treatment measures for this operation are the construction of 9 on bench treatment ponds.

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6. Improved operation and maintenance of existing treatment systems:

One alternative pollution treatment measure considered is pumping of the runoff to a wastwater treatment facility. The closest treatment facility is the Pineville Sewage Treatment plant which is located 15 miles away on the Cumberland River. There is currently no sewer Connection to the plant from Clear Fork. The collection of all runoff from the proposed mine site for the pumping to other treatment facilities would necessitate the construction of collection ponds and pumping stations. The construction of these collection ponds would impact the same acreage as the proposed treatment ponds.

The estimate cost of constructing of a pipeline at $22/foot is $1,742,400 (15 miles x 5280 ft/mile = 79,200' 79,200 x $22/foot = $1,742,400). The construction of the needed lift/pumping stations is estimated at $200,000 each with an estimated yearly maintenance cost of $393,792 per station. Due to the high cost for this type of treatment it has been deemed infeasable. Additionally the pumping of this runoff to another facility would negatively impact Clear Fork because of the reduced flow.

Another alternative pollution treatment measure considered is pumping of the runoff into underground injection control wells. The estimated constructin cost for subsurface storage wells is approximately $100,000 per well, with the need of at least three wells the high cost for this type of treatment it has been deemed infeasable. Additionally the pumping of this runoff to underground injection control wells would negatively impact Clear Fork because of the reduced flow.

Sediment structures are designed to accommodate a 10 year 24 hour storm event while allowing time for settling of sediment prior to discharge into the receiving stream to meet effluent discharge limitations. Discharge from these structures is precipitation dependent and these structures are designed to safely impound and discharge the runoff from the project area while limiting the impact to what is required based on industry standards. Treatment, including the use of flocculants, prior to entry into the sediment control structures was examined. Although sometimes effective treating concentrations of high solids, the use of flocculants would require additional equipment, construction and cost. The flocculent has to be dispersed into the stream, a "mixing" area has to be constructed and a primary "pond" is often recommended for the initial settling of large solid particles. Since the sediment control structure should, under normal conditions, effectively treat the solids from this project, this option creates additional impact, additional cost and additional hazards and is not necessary.

7. Seasonal or controlled discharge options:

Flow from the area will be controlled with the use of sediment structures, diversion ditches, and temporary sediment control devices so as not to create a plume, standing waters or fluctuations in normal water levels. Sediment structures are designed to accommodate a 10 year 24 hour storm event while allowing time for settling of sediment prior to discharge into the receiving stream to meet effluent discharge limitations. Discharge from these structures is precipitation dependent and the design of the structures and the spillways does not facilitate the impounding water for a controlled hydrological release. Pumping of the ponds is not anticipated except for removal during final bond release or during an unanticipated emergency event. If a situation requires pumping, then monitoring stations above and below the pumped inflow area will be

established. The monitoring stations will measure flow and pH for significant increases. Pumping will not occur when flow is below the critical stream velocity of 0.1 c.f.s.

8. Land application or infiltration or disposal via an Underground Injection Control Well:

Land application of surface runoff may take the form of dust suppression, hydroseeding and irrigation.

Dust suppression typically involves using large water trucks to spray haul roads, material stockpiles, and other areas being worked by equipment, approximately 6,000 to 12,000 gallons per day may be used for dust suppression and reclaimation purposes as needed. Water for dust suppression would be pumped from one of the on bench ponds into a tanker truck fitted with spray nozzles which would release water onto the roadway. The capacity of a water truck is 3,000 gallons and two to four load a day would be needed for dust suppression at a cost of approximately $500 to $1,000 per day, based on $250 per load.

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Not all the water resulting from this site can be used for these purposes and discharge is still necessary to the mining process and to maintain the stream function.

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9. Discharge to other treatment systems:

The closest treatment facility is the Pineville Sewage Treatment plant which is located 15 miles away on the Cumberland River. There is currently no sewer Connection to the plant from Clear Fork.

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